



INSTALLATION INSTRUCTIONS

**TURBOCHARGER SYSTEMS:
2004- Scion TC
Manual Transmission Only**

P/N 15152 (No Catalytic Converter)





READ THIS FIRST: Study these instructions completely before proceeding. Engine and/or turbocharger damage may occur if any component within these instructions is improperly installed. Turbonetics, Inc or any of its distributors cannot be held responsible for damages as a result of negligent or improper installation. This complete turbocharger system can be installed using common tools and automotive procedures, but installer must have a thorough knowledge of automotive engine operation and feel comfortable working on the vehicle. If in doubt, contact Turbonetics' technical support staff at 805-581-0333, between the hours of 8:00AM and 5:00PM PST, Monday through Friday.

Remove the turbocharger system from its carton and inspect for any obvious physical damage. All kit components are thoroughly inspected and carefully packaged prior to shipment from the factory. If any shipping damage is evident, contact your supplier and request that they process a claim with the shipper involved. Be sure to review the parts list on page 3 to verify that you have all necessary system components to proceed. If any components in the parts list are missing, contact Turbonetics' customer service staff.

Although this turbocharger system has been designed to use many of the factory emissions controls, it is not currently "smog" legal in California, and therefore recommended for "off road" use only. In other states, check local laws regarding aftermarket modification to emission controlled vehicles.

The information contained in this publication was accurate and in effect at the time the publication was approved for printing and is subject to change without notice or liability. Turbonetics reserves the right to revise the information presented herein or to discontinue the production of parts described at any time.

SAFETY REQUIREMENTS: It is recommended to follow these precautions.

- Always wear safety glasses & gloves.
- Turn the ignition switch to the OFF position & disconnect the battery.
- Always use properly rated jack stands when working under the vehicle.
- Prevent unexpected vehicle movement by using wheel chocks and/or parking brake.
- Operate the vehicle only in well ventilated areas.
- Do not smoke or use flammable items near or around the vehicle's fuel system.
- Keep hands, clothing and other objects away from moving parts when engine is running.

SUPPLIES: It is recommended to have the following items before beginning installation.

- Toyota factory service manual, for your model year Scion TC
- A large table or bench, and plenty of adjacent available workspace
- Standard selection of automotive tools, primarily metric sizes
- An assortment of "zip ties" and/or thin-gauge steel wire
- The ability to securely lift the vehicle at least a few feet off the ground
- High temp. automotive RTV sealant
- NPT thread sealant
- Replacement engine oil and oil filter
- Hammer



TORQUE RECOMMENDATION: When removing and re-installing factory fasteners, refer to the Toyota / Scion service manual for torque values. When installing fasteners included in this kit, refer to the following chart:

Fastener Size	Torque (Pound-Feet)	Torque (Newton-Meters)
1/4" or 6mm	10	13
5/16" or 8mm	19	25
3/8" or 10mm	33	45
NPT fittings	2-3 turns past finger tight	

TURBOCHARGER SYSTEM PARTS LIST:

QTY	P/N	DESCRIPTION	P/N 15152
1	11118	Turbocharger, E50 / Stg.2 / Ball Bearing	X
1	5-340	Air to Air Intercooler, Spearco	X
1	10781	Wastegate, Evolution	X
1	10843	Blow-off Valve, Raptor	X
1	11124	Hardware Kit, Nuts / Bolts / Fittings / Misc.	X
1	11126	Hardware Kit, Fuel Components	X
1	21239	Tube, Turbocharger to Intercooler	X
1	21240	Tube, Intercooler to Throttle Body – 1	X
1	21241	Tube, Intercooler to Throttle Body – 2	X
1	21242	Tube, Intercooler to Throttle Body – 3	X
1	21238	Tube, Air filter to Turbocharger	X
1	21243	Tube, Exhaust, Downpipe	X
1	21279	Manifold, Exhaust	X
1	31040	Heat Shield, Tangential T3 housing	X
1	31080	Air Filter, AEM Dry-Flow, 3.0" Inlet	X
1	21286	Fuel Controller, UniChip	X
1	60133	Install Instructions	X



QTY	P/N	DESCRIPTION
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QTY	P/N	DESCRIPTION
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HOSES / CLAMPS PARTS LIST:

2	30128-4	Silicone Hose Coupling, 2.0"
1	30162-4	Silicone Hose Coupling, 3.0"
1	30172-4	Silicone Hose Coupling, 2.50"
1	21364	Silicone Hose Coupling, 2.50" x 6.50" long
1	30380-4	Silicone Hump Connector, 2.50"

1	30444-4	Silicone 45' Elbow, 2.50"
3 ft.	30827	Hose, Oil Drain – 5/8"
1	31072-4	Silicone Hose Coupling, 1.50"
4	30275-200	T-Bolt Clamp – 2.0"
8	30275-250	T-Bolt Clamp – 2.50"
2	30275-300	T-Bolt Clamp – 3.00"

HARDWARE KIT# 11124 (NUTS / BOLTS / FITTINGS) PARTS LIST:

1	30133	Fitting, 3/8" NPT x 5/8" Hose, Straight
4	30306	Fitting, 1/8" NPT x 5/32" Hose, Straight
4	30307	Fitting, 1/8" NPT x 5/32" Hose, Elbow
1	30544	Fitting, 1/8" NPT x -3, Straight
1	30551	Fitting, 1/8" NPT x -3, Elbow
1	30562	Fitting, 1/8" NPT, M x M x F
1	30244	Fitting, 1/2" NPT x 5/8" Hose, Straight
1	31068	Fitting, Hose Tee - Nylon
2	30570	Hex Bolt, 5/16 -18 x 1.0" Lg.
4	30739	Hex Bolt, M8-1.25 x 25mm Lg.
3	30700	Hex Bolt, M8-1.25 x 20mm Lg.
2	30248	Hex Bolt, 1/4-20 x 5/8" Lg.
1	31003	Hex Bolt, M10-1.25 x 40mm Lg.
2	31071	Screw, M4-0.7 x 10mm, BHCS
9	30589	Flat Washer, 5/16" or M8
6	30804	Flat Washer, M10
1	30591	Flat Washer, 1/4" or M6
9	30593	Lock Washer, 5/16" or M8

5	30805	Lock Washer, M10
1	30586	Hex Nut, Nylon Lock
2	30653	Hex Nut, M8
5	30803	Hex Nut, M10-1.25
4	30806	Stud, M10-1.25 x 42mm Lg.
2	30860	Stud, M8-1.25 x 30mm Lg.
1	30862	Hex Plug for O2 Bung, M18-1.5
1	31067	Mount, Vibration Damping – Blk.
1	20259	Flange, Oil Drain – 1/2" NPT
1	21273	Tool, Center Punch
1	21376	O2 Sensor Ext. Boss
1	30808	Tap, 1/8 NPT
1	30809	Tap, 3/8 NPT
1	20142	Gasket, Wastegate
1	30468	O-Ring, Blow off Valve
2	30612	Clamp, Hose, Liner Style #020
4	30817	Clamp, Hose, Worm Drive, 5/8"
1	31014	Oil Supply Hose, -3 x 12"
1	31007	Heat Shield Wrap – 1.5" Wide x 7.5" Long
12	30542-BK	Hose, Vacuum, Silicone – 5/32"

HARDWARE KIT #11126 (FUEL COMP'TS) PARTS LIST:

4	21382	Fuel Injector, Upgrade
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4	31079	Pig Tail Harness, Fuel Injector
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P/N 11118



P/N 5-340



P/N 10781



P/N 10843



P/N 11124



P/N 11124



P/N 21238



P/N 11126



P/N 21241



P/N 21240



P/N 21242



P/N 21239





P/N 21243



P/N 31040



P/N 21279



P/N 21286



P/N 31080



P/N 60133





Prepping the Vehicle for Turbo Kit Installation

1. Jack up the vehicle to a workable height and secure vehicle with jack stands. SEE FIGURE 1

FIGURE 1



2. Using a 10mm socket, remove undercarriage plastics splash guard. SEE FIGURE 2 & 3

FIGURE 2



FIGURE 3



Removing the Front Fascia

1. Using a 10mm socket, remove the bolt inside the fender well. SEE FIGURE 4 & 5

FIGURE 4



FIGURE 5





2. Using a small flat head screwdriver, carefully insert the screwdriver in the indented slot on the plastic trim clip and pry upwards. SEE FIGURES 6, 7, & 8

FIGURE 6

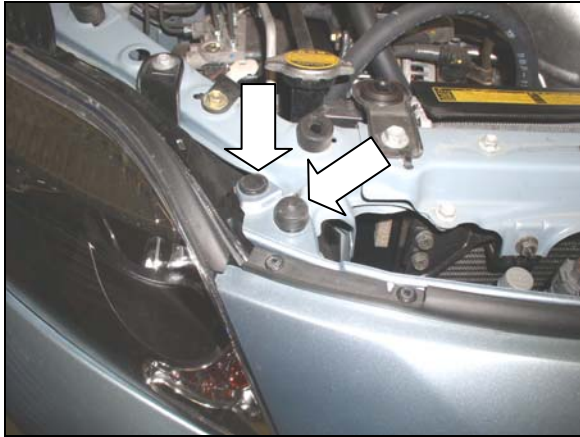


FIGURE 7

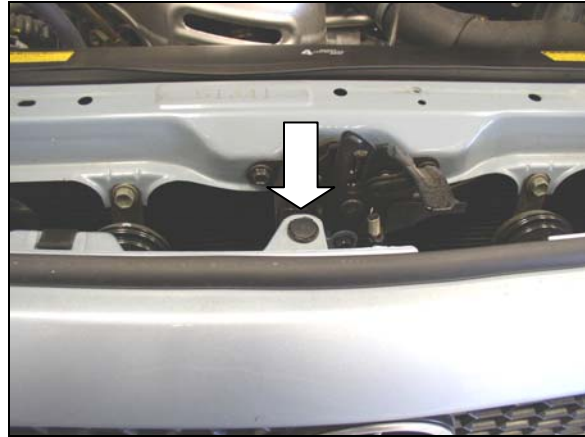
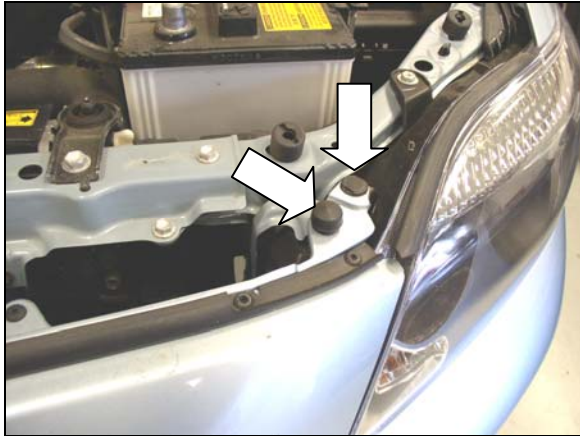


FIGURE 8



3. Remove front fascia by pulling it forward
4. Remove foam bumper reinforcement. SEE FIGURE 9

FIGURE 9



5. Remove plastic air dams on each side of the vehicle. Air dams are secured to the vehicle with the plastic trim clips that can easily be removed by using a flat head screwdriver. SEE FIGURE 10

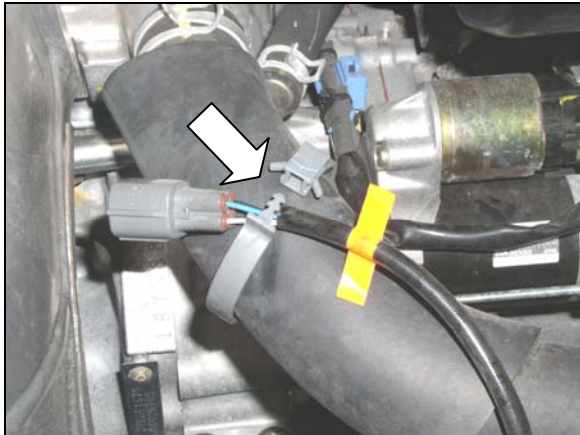
FIGURE 10



Exhaust Disassembly

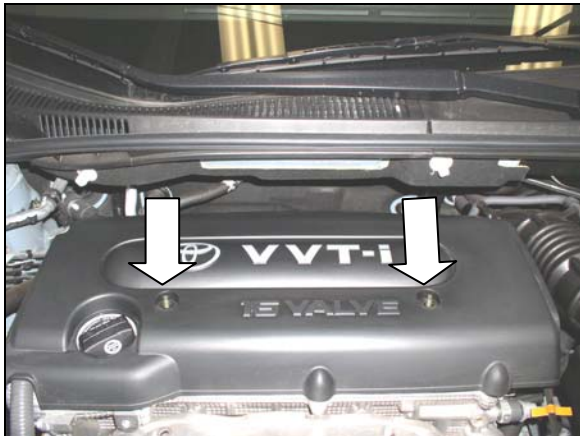
1. Unplug O2 sensor and remove the plastic securing ring that holds the wire to the radiator hose. SEE FIGURE 11

FIGURE 11



2. Remove the cosmetics plastic engine cover by unscrewing two 10mm nuts. SEE FIGURE 12

FIGURE 12





3. Remove the factory exhaust head shield by unscrewing the three 12mm bolts and one 12mm nut. SEE FIGURE 13 & 14

FIGURE 13

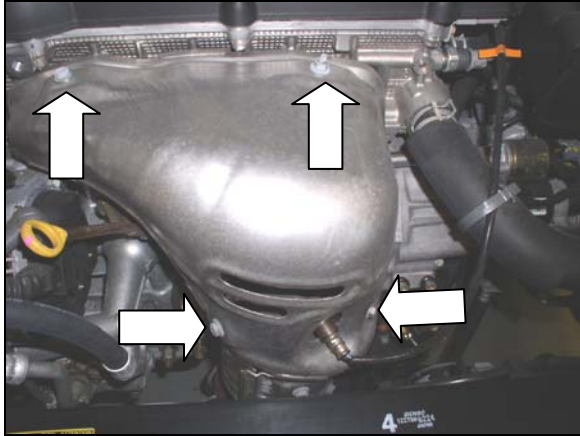


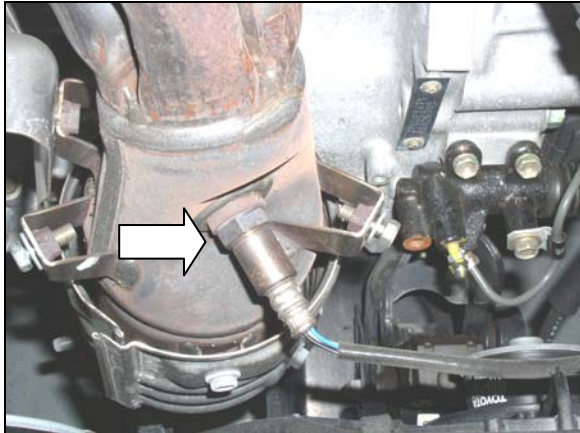
FIGURE 14



Note: Careful while removing the heat shield, it tends to get caught up with the O2 sensor and other things in the area.

4. Unscrew the O2 sensor with a 7/8" open end wrench or with a O2 sensor socket. SEE FIGURE 15

FIGURE 15



5. Using a 14mm socket, remove the stock catalytic converter support brackets. SEE FIGURE 16 & 17

FIGURE 16

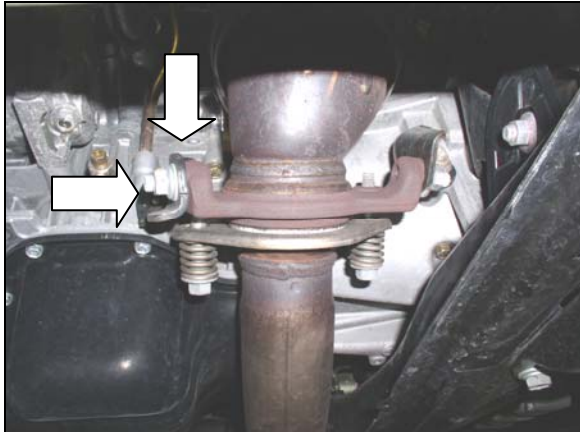


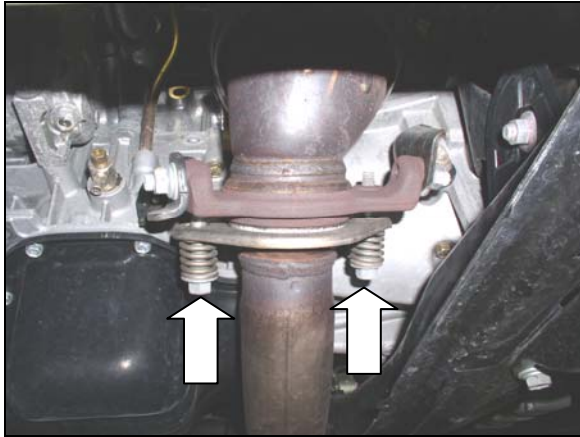
FIGURE 17





6. Unbolt spring loaded bolts that connects the stock catalytic converter to the down pipe. SEE FIGURE 18

FIGURE 18



7. Save the exhaust crush ring gasket, this will be used when installing the new supplied down pipe.
8. Remove the five bolts that hold the stock exhaust manifolds to the head with a 12mm wrench. SEE FIGURE 19

FIGURE 19



Stock Intake Disassembly

1. Unplug the mass air sensor and remove the two Phillips screws that mounts the sensor to the factory air box. SEE FIGURE 20

FIGURE 20





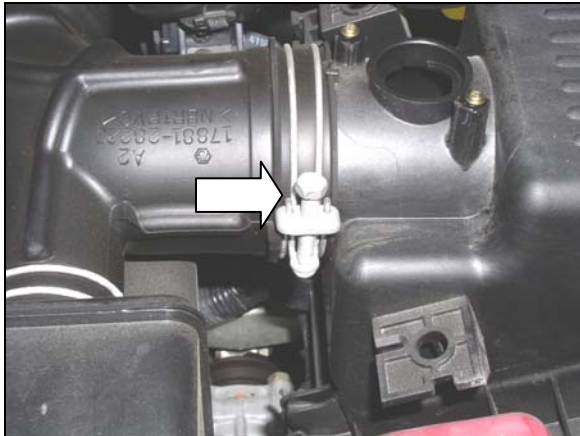
2. Carefully lift the mass air sensor out of the factory air box and set it aside. You will be re-installing the sensor on a supplied intake pipe at a later time.
3. Remove the engine breather hose by pinching the tabs on the hose clamps with your finger or a pair of pliers and push the clamp away from the motor. SEE FIGURE 21

FIGURE 21



4. Loosen hose clamp that connects the intake tube to the air box. SEE FIGURE 22

FIGURE 22



5. Remove the factory intake tube that connects to the throttle body by pinching the tabs on the hose clamp with a pair of pliers. SEE FIGURE 23

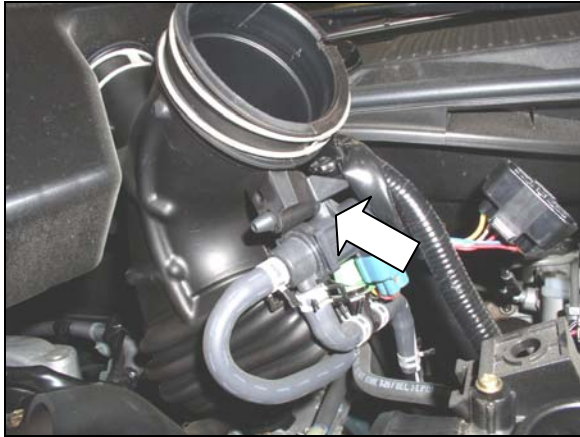
FIGURE 23





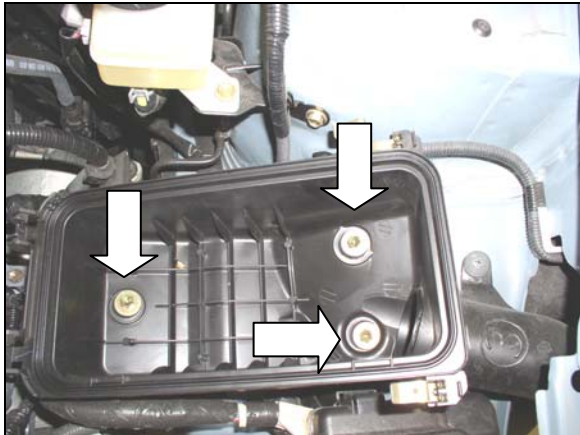
6. Remove the sensor that is mounted to the factory intake tube by inserting a small flat head screwdriver between the sensor bracket and the intake tube bracket. SEE FIGURE 24

FIGURE 24



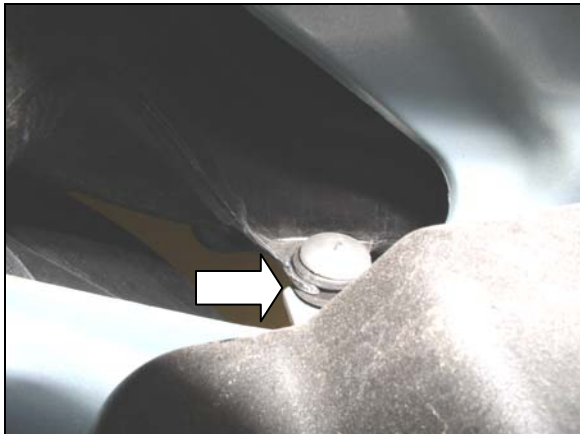
7. Remove the factory air box by unbolting the three 10mm bolts inside. SEE FIGURE 25

FIGURE 25



8. Remove the factory cold air intake tube by unscrewing the Phillips screw that mounts the factory cold air intake tube to the body. There is another Phillips screw that holds the tube to the body, that screw does not need to be removed, the tube bracket slides underneath that screw only. SEE FIGURE 26

FIGURE 26





Fuel System Upgrade

1. Cut the vacuum hose that connects to the throttle body in half and install the supplied T-fitting in the orientation. SEE FIGURE 27 & 28

FIGURE 27

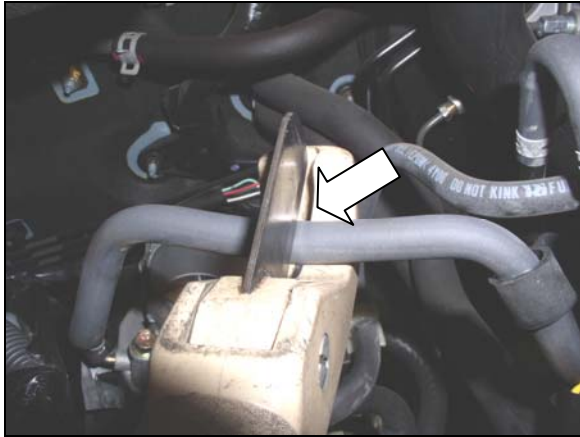
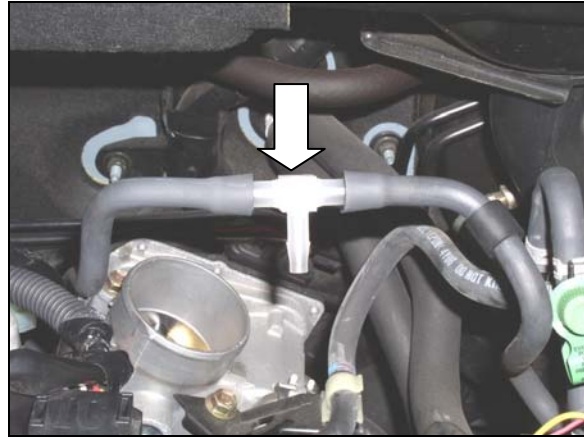


FIGURE 28



2. Unplug the four factory injectors by squeezing the tab on the side of the plugs and pulling upwards.
3. Disconnect the plug to the VVTi actuator by the passenger side of the fuel rail.
4. Unbolt both 12mm nuts that hold the fuel rail to the head. SEE FIGURE 29

FIGURE 29



5. Remove the fuel rail from the head and set the fuel rail on the top of the head. SEE FIGURE 30

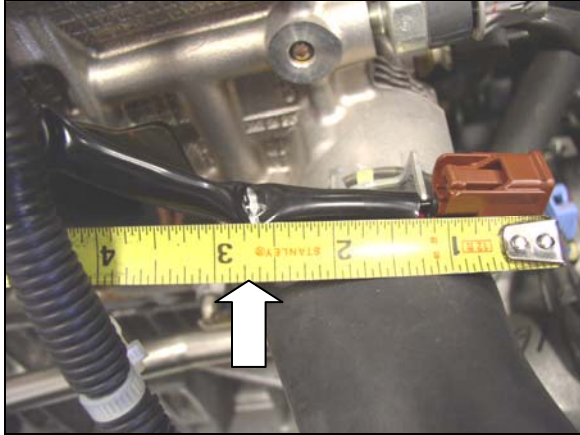
FIGURE 30





6. Remove stock fuel injectors from the fuel rail. Careful not to lose any of the o-rings when removing them.
7. Connect the new supplied injector pig tails to the factory harness by cutting the stock injector connector plugs off the factory harness. Cut wires around 2 3/4" from the edge of the connector, leaving enough wire length to connect the new plugs. SEE FIGURE 31

FIGURE 31



8. Crimp the new supplied connectors to the factory harness. Make sure the polarities are correct. SEE FIGURE 32 & 33
 - a. Wires colored blue, red, yellow, and white are positive (+)
 - b. Wires colored black are negative (-)

FIGURE 32



FIGURE 33





9. Remove the o-rings from both the top and bottom of the stock injector and install them on the new supplied injectors (P/N 21382). SEE FIGURE 34, 35, & 36

FIGURE 34



FIGURE 35



FIGURE 36



10. Slightly coat the outside of both o-rings with grease to ease installation of the injectors to the head and the rail.
11. Carefully insert the injector to the bungs on the head making sure the o-rings does not get kinked. Make sure the injector plugs are facing toward the passenger side.
12. Re-install the factory fuel rail. Once the rail is on, tighten the bolts slightly with your finders. Do not tighten the rail to the head yet; slightly twist the injectors back and forth to make sure all the injectors are seated properly.
13. With all injector plugs facing the passenger side, plug the injector harness to the injectors.
14. Once all the injectors are plugged, slightly twist the injectors so all the injector plugs are facing toward the rear of the vehicle. This will allow the injectors' spray pattern to correctly match the factory spray pattern.
15. Tighten the two nuts that holds the rail to the head.



Installing Turbo Oiling System Turbo Oil Feed

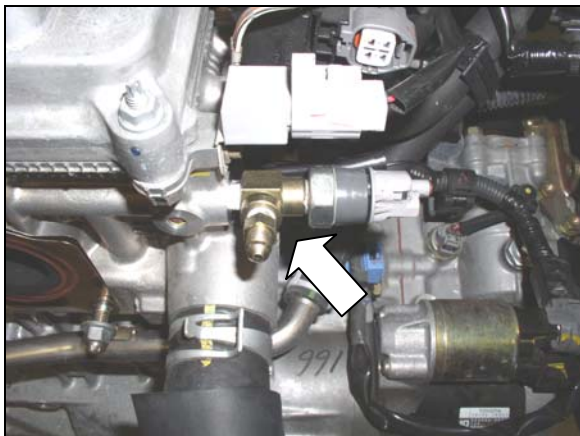
1. Locate the oil sending unit on the driver's side of the head. On top of the radiator hose connection. SEE FIGURE 37

FIGURE 37



2. Unplug the wires that are connected to the sensor and using a 24mm socket, remove the sensor from the head.
3. Re-tap the threaded hole using the supplied 1/8-27 NPT tap. Make sure you coat the tap with a lot of grease so no chips from the re-thread will enter the motor.
4. Apply a small amount of thread sealant to the threads of the sensor and install the factory oil sensor to the supplied brass T fitting as shown in the picture below. It is recommended that you use a liquid thread sealant. When using a tape style thread sealant, make sure the tape does not get into the oil passages.
5. Hand thread the brass T fitting to the head and use a 24mm socket to tighten.
6. Once the T fitting is tighten, make sure the threaded port of the fitting is facing toward you with a slight angle upwards. SEE FIGURE 38
7. Install and tighten the supplied brass 1/8 NPT to -3AN fitting to the threaded port on the T- fitting. Apply a small amount of thread sealant to the threads of the fitting. SEE FIGURE 38

FIGURE 38





Turbo Oil Drain

1. Using the supplied center punch (P/N #21273) and a hammer, punch a hole through the oil pan. Do not use a drill, by using a center punch, the material that bends over is used for threading. SEE FIGURE 39, 40, & 41

FIGURE 39

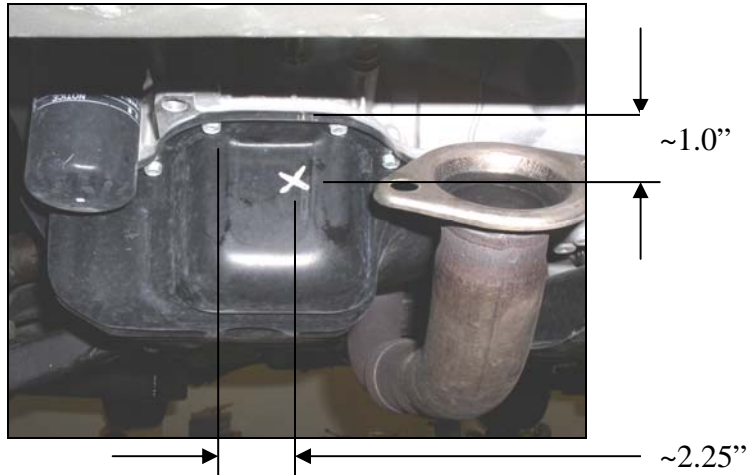


FIGURE 40



FIGURE 41



2. Coat the supplied 3/8" NPT tap (P/N #30809) with grease to insure no metal debris will enter the pan and tap the hole you just made. SEE FIGURE 42

FIGURE 42





3. Apply a small amount of high temp RTV to the threads of the supplied 3/8" NPT to 5/8" barb brass fitting (P/N #30133) and the threads in the oil pan as shown in the picture below. Thread the fitting into the pan and tighten. SEE FIGURES 43, 44, & 45

FIGURE 43

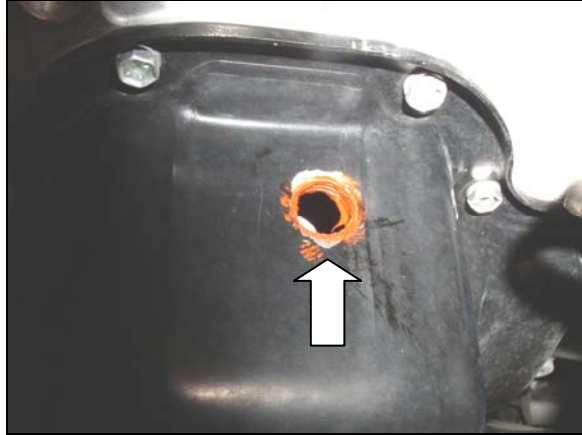


FIGURE 44

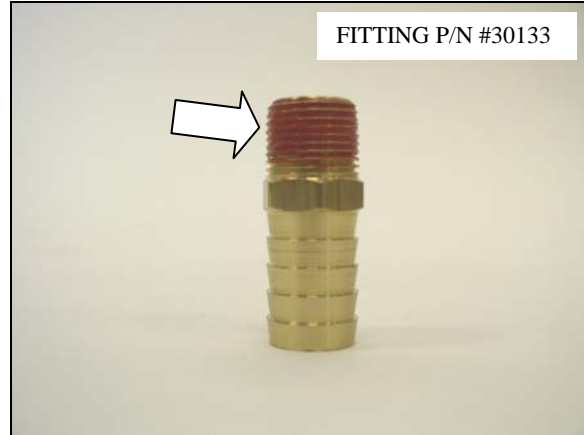


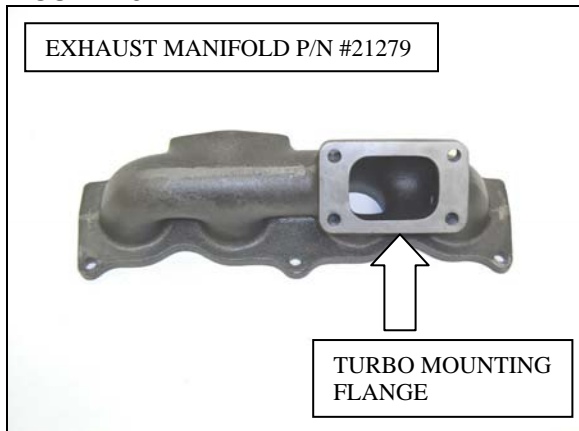
FIGURE 45



Assembling the Turbo and Mounting it to the Manifold

1. Thread the four supplied M10x1.25 studs (P/N #30806) onto the turbo mounting pad on the manifold. SEE FIGURE 46

FIGURE 46





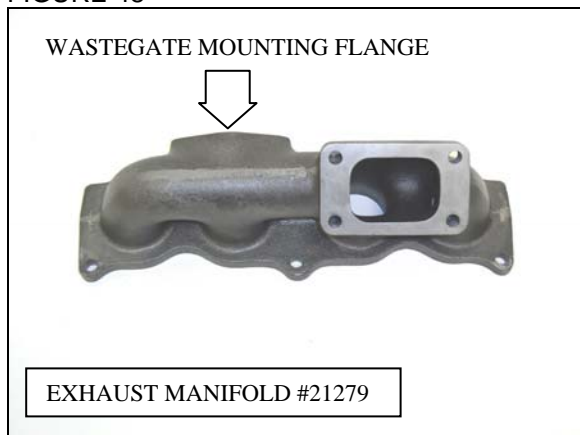
2. Slide the supplied turbo inlet gasket (P/N #30263) onto the four studs and mount turbocharger onto the manifold as shown in picture 47.
3. Secure the turbocharger to the manifold using the supplied flat washer (P/N #30804), lock washer (P/N #30805), and nut (P/N #30803), in those respective order. SEE FIGURE 47

FIGURE 47



4. Install the supplied oil drain flange (P/N #20259) to the turbocharger with a supplied oil drain gasket (P/N # 30141) in the middle. Secure the flange to the turbocharger using the supplied M8-1.25 (P/N #30700) bolt with a lock washer.
5. Apply a small amount of liquid thread sealant or thread tape to the supplied brass 1/2" NPT to 5/8" hose barb fitting (P/N #30244) and thread onto the oil drain flange. Tighten fitting with a 7/8" open wrench or socket.
6. Thread the two supplied M8 x 1.25 studs (P/N #30860) onto the wastegate mounting pad on the manifold. SEE FIGURE 48

FIGURE 48



7. Mount the Evolution wastegate (P/N #10781) to the manifold using the supplied M8 lock washers (P/N #30593) and M8 nuts (P/N #30653). Hand tight the nuts only.
8. Apply a thin layer of RTV high temp. silicone to the turbocharger side of the downpipe (P/N #21243). SEE FIGURE 49 & 50



FIGURE 49

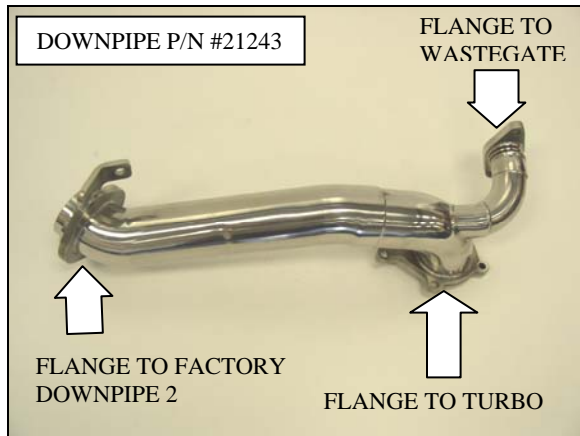
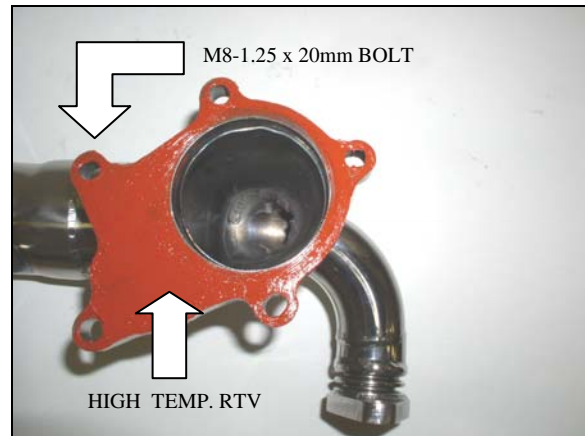
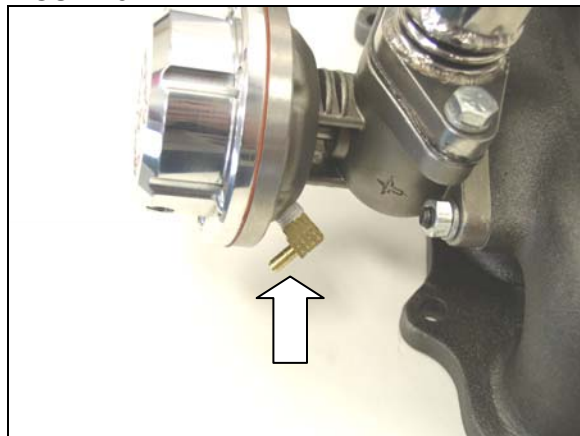


FIGURE 50



9. Use five M8 flat washers (P/N #30589), four M8-1.25 x 25mm bolts (P/N #30739) and one M8-1.25 x 20mm (P/N #30700), mount the downpipe to the turbocharger. Hand tight all the bolts. SEE FIGURE 50
10. Using two 5/16" lock washers (P/N #30593) and two 5/16-18 bolts (P/N #30570), secure the dump tube flange on the downpipe to the wastegate with a supplied wastegate gasket (P/N #20142) in the middle.
11. Apply a small amount of thread sealant to the threads of the supplied 90 degree 1/8-27 NPT to 5/32" brass barb fitting (P/N #30307) and screw it onto the **BOTTOM** port of the wastegate. Make sure the barb fitting is facing upwards. SEE FIGURE 51

FIGURE 51



12. Tighten all nuts and bolts.

Installing the Heat Wrap

1. Using the supplied heat wrap (P/N #31007), wrap the A/C line that sits parallel to the downpipe. Wrap the line starting from the hard aluminum line at the A/C compressor and go up about 1.5 foot.



Mounting the Turbo Assembly to the Engine

1. Bolt the turbo and manifold assembly onto the head. SEE FIGURE 52 & 53

FIGURE 52

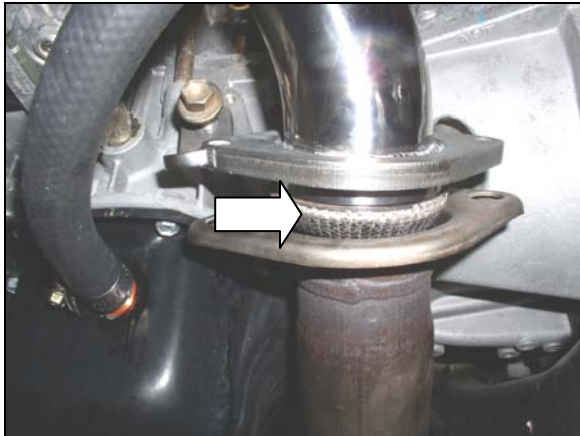


FIGURE 53



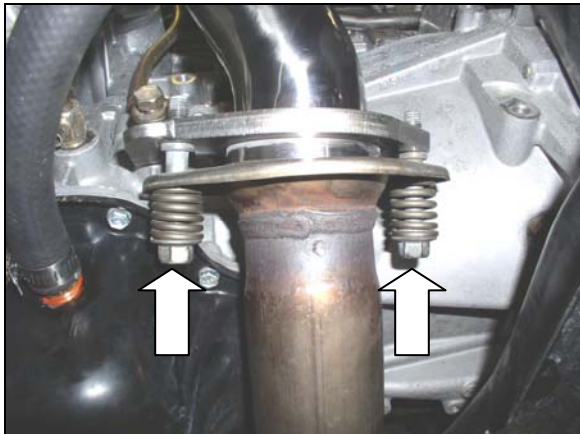
2. Finger tight all five bolts that mount the manifold to the head. Make sure the factory exhaust gasket is re-installed.
3. Slide the factory exhaust donut onto the new supplied downpipe. SEE FIGURE 54

FIGURE 54



4. Bolt the factory secondary downpipe to the new downpipe using the original spring loaded bolts finger tight only. Make sure the bolt and spring is assembled correctly. SEE FIGURE 55

FIGURE 55





5. Using the original factory bolt, bolt the turbo downpipe support bracket to the side of the engine block.
6. Tighten the nuts that hold the manifold to the head first, and then tighten the bolt that support the turbo downpipe to the block and then the bolts that connect the secondary factory downpipe to the new supplied downpipe.
7. Apply a small amount of anti-seize to the threads of the factory O2 sensor and install the O2 sensor to the new turbo downpipe.
8. Remove the secondary O2 sensor and install the supplied O2 extension boss (P/N 21376) in between the sensor and the factory exhaust pipe. SEE FIGURES 56 & 57

FIGURE 56



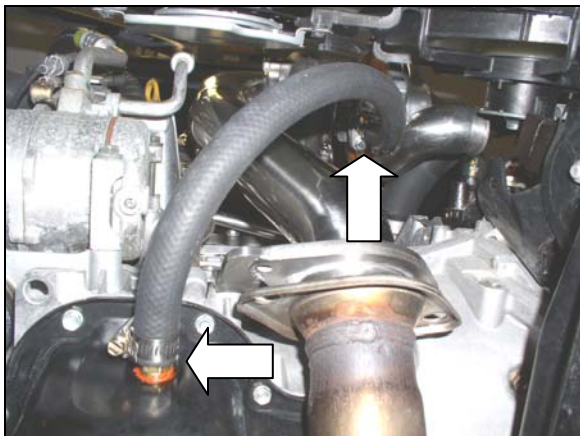
FIGURE 57



Connecting the Oil Feed and Drain to Turbo

1. Cut the supplied 5/8" ID hose (P/N #30827) to 24.0". Use the supplied hose clamps and attach one end of the hose to the oil drain fitting and on end to the oil return fitting on the factory oil pan. SEE FIGURE 58

FIGURE 58



2. Install the supplied 90 degree 1/8" NPT to -3AN brass fitting (p/n #30551), onto the top of the oil filter of the turbo that was pre-installed from the factory. No thread sealant is necessary. Tighten fitting, make sure the side with the -3AN (tapered thread) is facing toward the back of the vehicle.
3. Connect the supplied 12.0" long -3AN stainless steel braided line (P/N #31014) from the T-fitting by the oil sending sensor to the fitting on top of the turbo. SEE FIGURE 59



FIGURE 59



Mounting Turbo Heat Shield

1. Wrap the supplied heat shield (P/N #31040) onto the turbine housing. SEE FIGURE 58

FIGURE 58



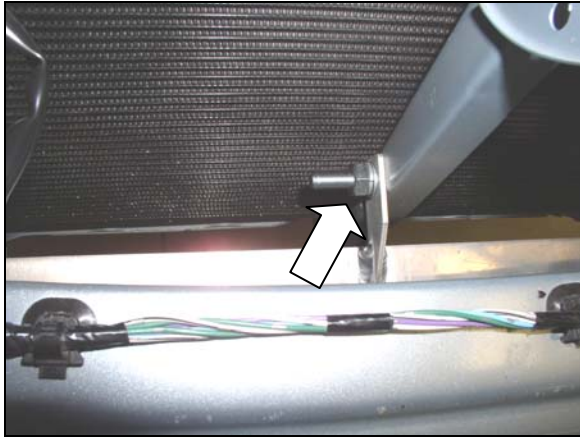
2. Using safety wires, secure the heat shield to the turbine housing.

Mounting the Intercooler and Routing the Boost Tubes

1. Slide the intercooler (P/N #5-340) in place. The top mount of the intercooler should line up with the left side of the center core support reinforcement bar.
2. Bolt the intercooler to the center support bar using the supplied M10-1.25 bolt (P/N #31003). A flat washer should be on the bolt head side, while on the other side, it should have a flat, lock washer, and the nut, in that respective order. SEE FIGURE 59



FIGURE 59

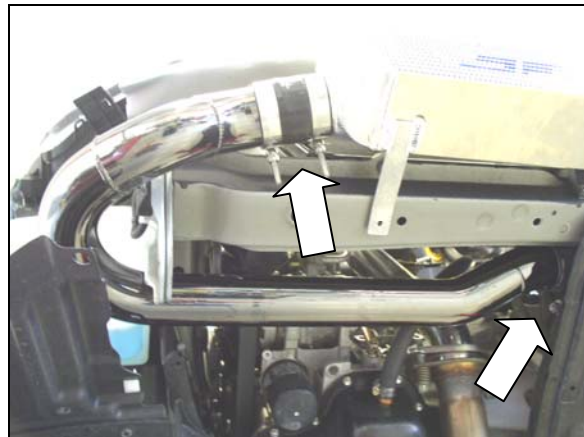


3. The bottom brackets of the intercooler should both line up with the existing mounting holes. When re-installing the front fascia later, the factory bolts will bolt the intercooler to the core support.
4. Slide the supplied 6.50" long silicone hose (P/N #21364) on to pipe #21240. SEE FIGURE 60 & 61
5. Using a 2.50" (P/N #30172-4) silicone hose, connect the pipe to the intercooler, making sure the end with the 6.50" long silicone hose (P/N #21364) goes through the space between the front engine mount and the center core support reinforcement bar. SEE FIGURE 61. Secure the pipe to the intercooler using the supplied 2.50" (P/N #30275-250) t-bolt clamps. Do not completely tighten the clamps at this point, tighten clamps just enough to keep the pipe in its place.

FIGURE 60



FIGURE 61



6. Slide the supplied 2.0" diameter silicone hose (P/N #30128-4) onto the elbow of the compressor housing along with two 2.0" t-bolt clamps (P/N #30275-200). Connect intercooler pipe assembly (P/N #21239) onto the other end. Using a 2.0" silicone hose (P/N #30128-4) connect the shorter end of the pipe to the intercooler. Secure pipe to intercooler using supplied 2.0" t-bolt clamps (P/N #30275-200). SEE FIGURE 62, 63, & 64.

FIGURE 62



FIGURE 63

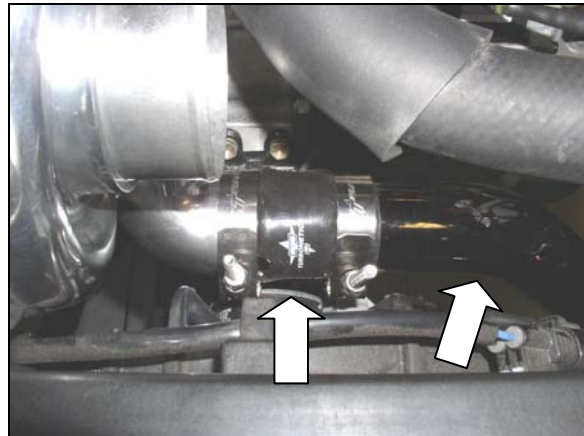
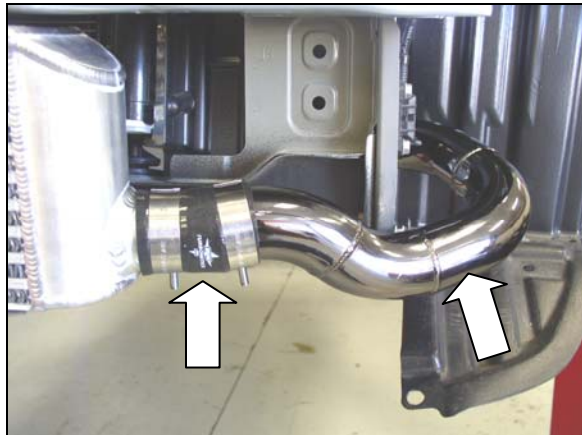


FIGURE 64



7. Using the 45 degree silicone hose and two supplied 2.50" t-bolt clamps (P/N #30275-250), attach intercooler pipe assembly (P/N #21242) to the throttle body. SEE FIGURE 65, 66, & 67

FIGURE 65

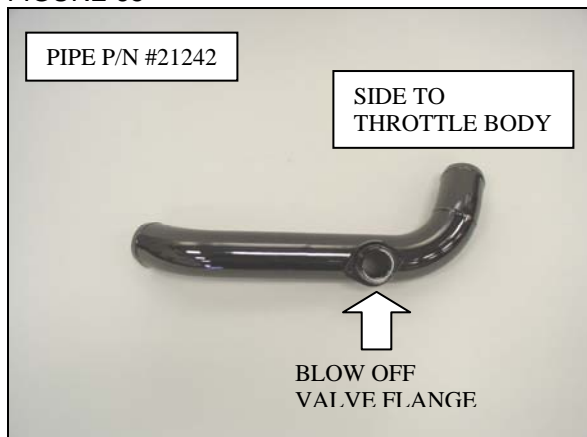


FIGURE 66

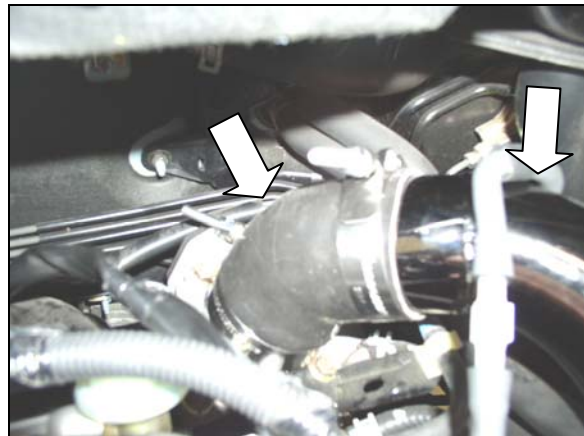


FIGURE 67



8. Install the supplied 2.50" silicone hump connector (P/N #30380-4) to the other end of the pipe that is connected to the throttle body, securing it with a 2.50" t-bolt clamp (P/N #30275-250).
9. Connect intercooler pipe assembly (P/N #21241) from the throttle body pipe to the pipe (P/N #21240) with the 6.50" long silicone hose. Secure pipes with the supplied 2.50" t-bolt clamps. SEE FIGURE 68 & 69

FIGURE 68



FIGURE 69

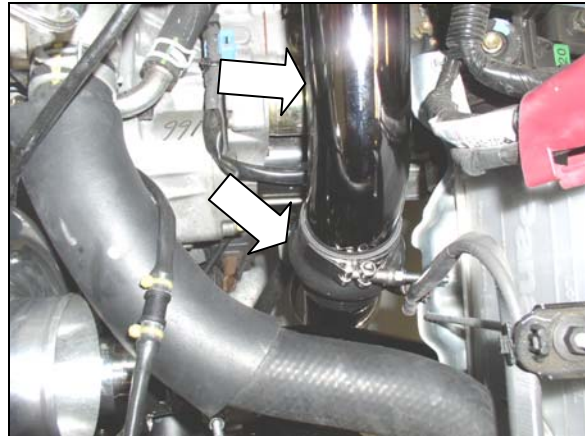


FIGURE 70

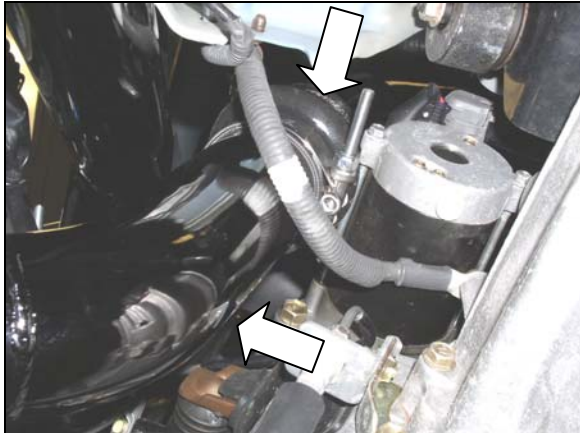
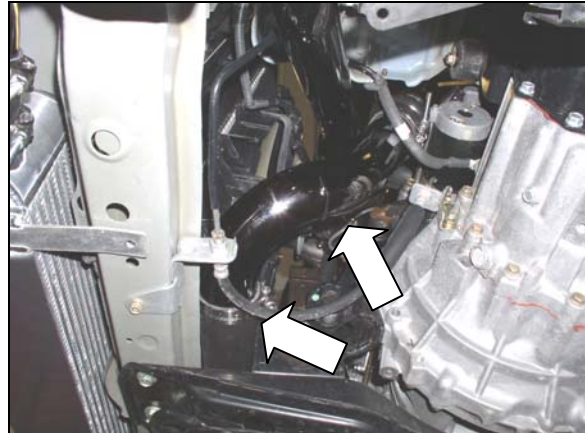


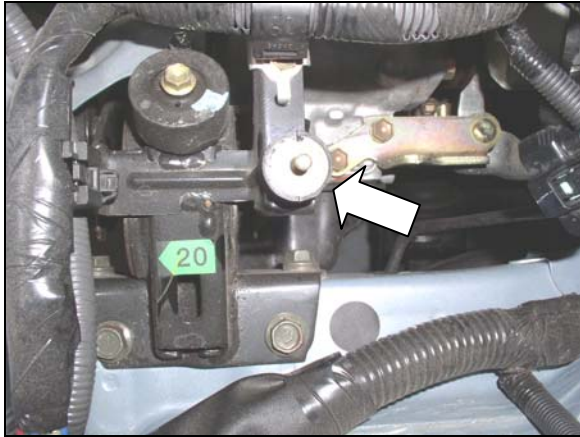
FIGURE 71



10. Install the rubber isolator (P/N #31067) into the original factory air box mounting hole. SEE FIGURE 72



FIGURE 72



11. Install the rubber o-ring (P/N #30468) into the groove of the blow off valve flange and install the Raptor blow off valve to the flange using the supplied $\frac{1}{4}$ -20 x $\frac{5}{8}$ serrated bolts (P/N #30248). Make sure the o-ring remains in its groove. Rotate the valve so it facing toward the front of the vehicle. Slide the supplied 1.50" diameter silicone hose (P/N #30172-4) onto the discharge of the valve. Secure using band clamps (P/N #30612).
12. Attach the turbo to air filter pipe assembly onto the turbo inlet using the supplied 3.0" silicone hose coupling (P/N #30162-4). Secure the pipe using 3.0" t-bolt clamps (P/N #30275-300). While installing the pipe assembly to the turbo, slide the blow off valve re-circulation tube into the silicone hose you previously installed on the discharge of the valve. SEE FIGURE 73 & 74 Secure the mount on one end of the intake tube to the rubber isolator previously installed using the supplied nylon lock nut (P/N #30586). SEE FIGURE 75

FIGURE 73

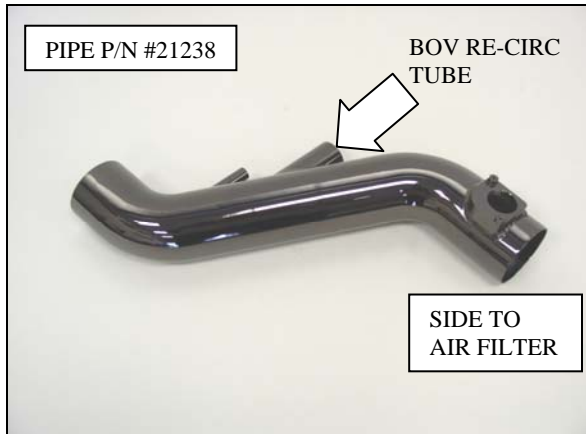
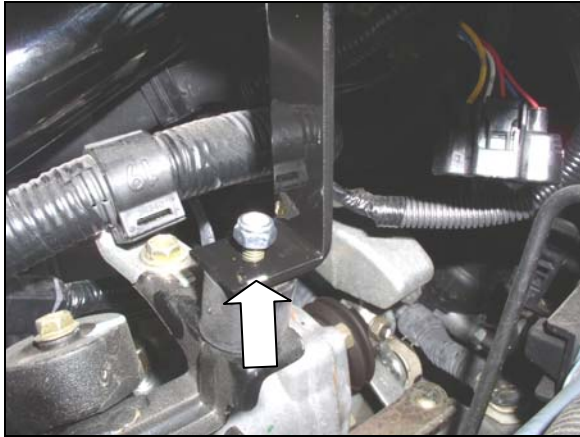


FIGURE 74



FIGURE 75



13. Install the supplied AEM Dry-Flow air filter (P/N #31080) to the other side of pipe assembly (P/N #21238). Re-install the factory mass air sensor on to machined flanged on the pipe. Bolt the sensor to the pipe using the supplied socked head allen bolts (P/N #31071). Don't forget to plug the sensor. SEE FIGURE 76 & 77

FIGURE 76

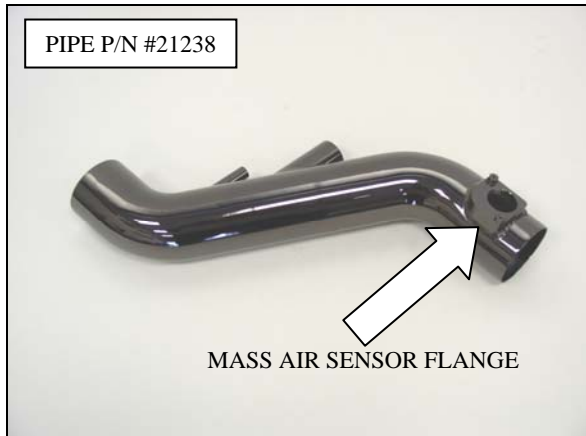
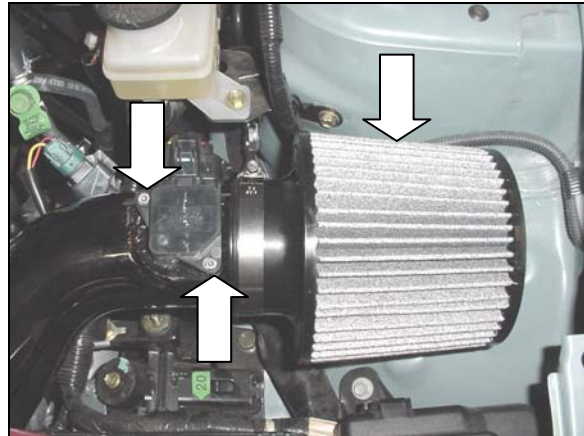


FIGURE 77



14. Cut the supplied 5/8" hose (P/N #30827) to 11.0". Slide one end onto the turbo-to-filter pipe and the other end onto the engine's valve cover. Secure using supplied band clamps. SEE FIGURE 78, 79, & 80

FIGURE 78

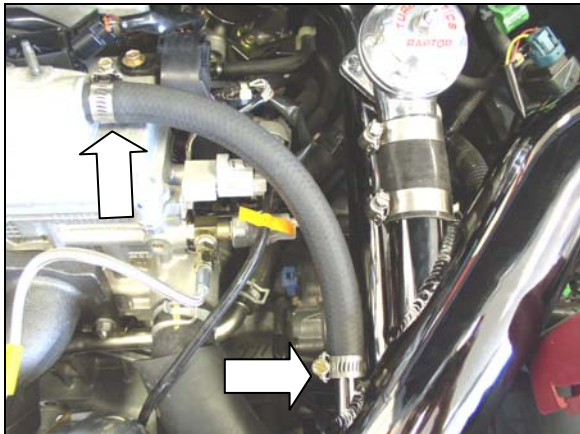


FIGURE 79





FIGURE 80



Connecting the Signal Line to the Blow of Valve and Wastegate

1. Install 1/8"NPT to 5/32" barb fitting (P/N #30306) to the **TOP** port in the top cover of the blow off valve. Apply a small amount of thread sealant. SEE FIGURE 81

FIGURE 81



2. Cut the supplied 5/32" vacuum tubing (P/N #30542-BK) to length and connect the fitting on the blow off valve to the t-fitting by the throttle body. Next, connect the vacuum hose from the fitting on the turbo compressor housing to the fitting on the wastegate.

Re-Installing the Front Fascia

1. Remove the lower bumper grill by popping it out from the back of the bumper. SEE FIGURE 82

FIGURE 82





2. Replace the factory foam bumper bar back onto the reinforcement bar. SEE FIGURE 83

FIGURE 83



3. Replace the bottom plastic splash guard and front fascia. The factory bottom front fascia bolts will also secure the bottom intercooler brackets to vehicle. SEE FIGURE 84, 85, & 86

FIGURE 84



FIGURE 85

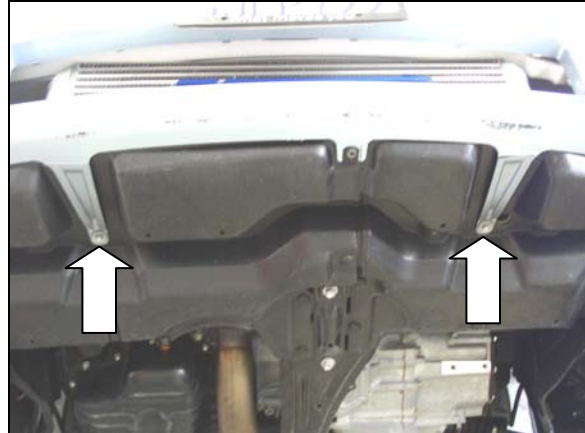


FIGURE 86





Installing the UniChip PnP System

1. The factory ECU is located behind the glove box. Open the glove box and push on both sides toward the middle of the box and pull towards you slightly to release the box. SEE FIGURE 87, 88, & 89

FIGURE 87

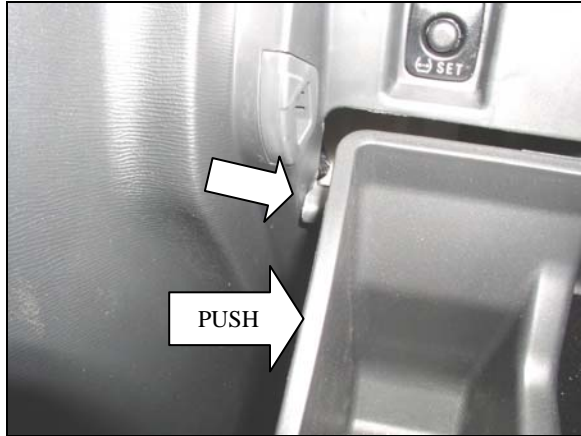


FIGURE 88

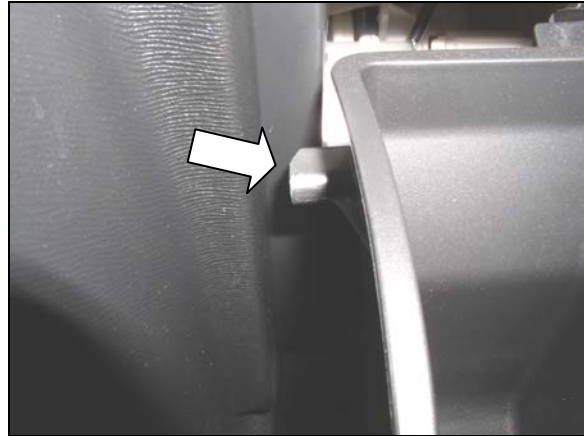
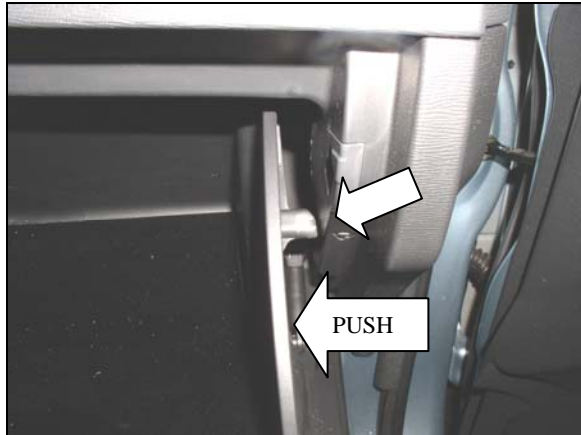
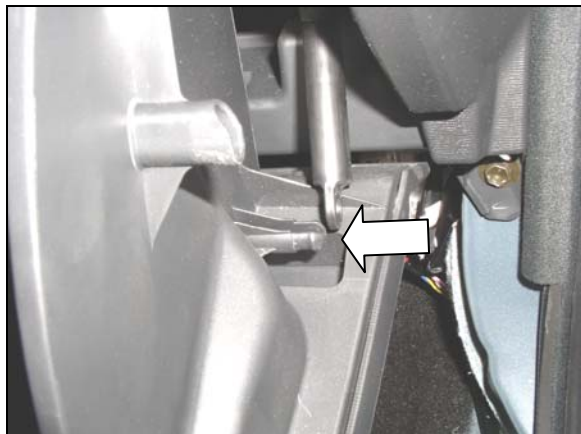


FIGURE 89



2. Rotate the glove box downwards to gain access to the hinge. Squeeze the plastic hinge together and push it away from the supporting rod for both sides. SEE FIGURE 90

FIGURE 90



3. Locate the factory ECU and unplug plugs #1, 3, and 5. SEE FIGURE 91, 92, & 93

FIGURE 91

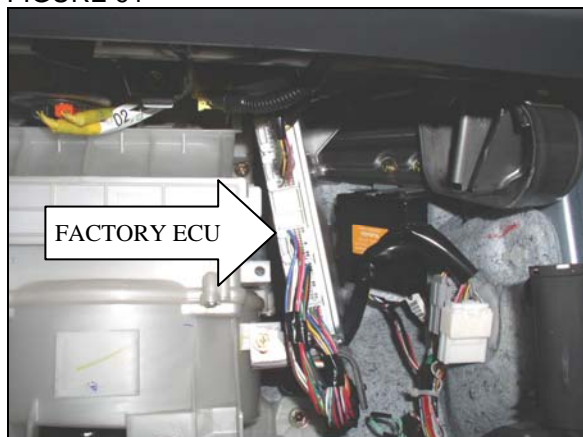


FIGURE 92

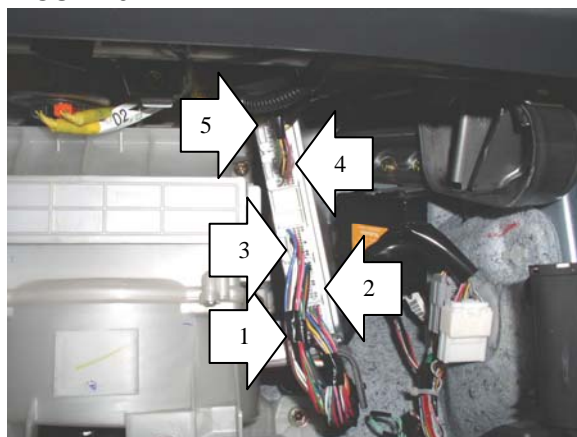
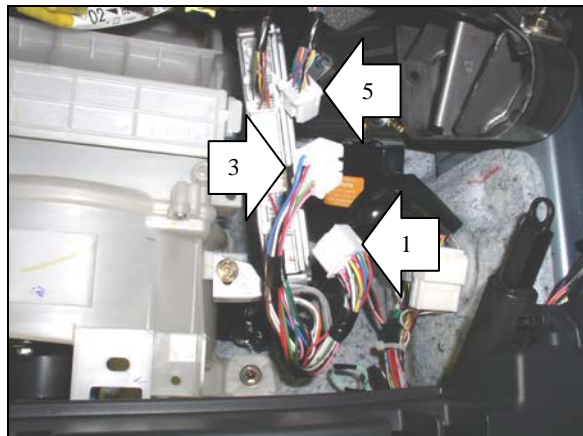


FIGURE 93



4. Using the supplied velcro, attached the Unichip PnP to the side of the factory ECU. Connect the harness from the Unichip PnP to the factory ECU and connect plug #1, 3, & 5 from the factory harness to the PnP unit. SEE FIGURE 94, 95, & 96

FIGURE 94

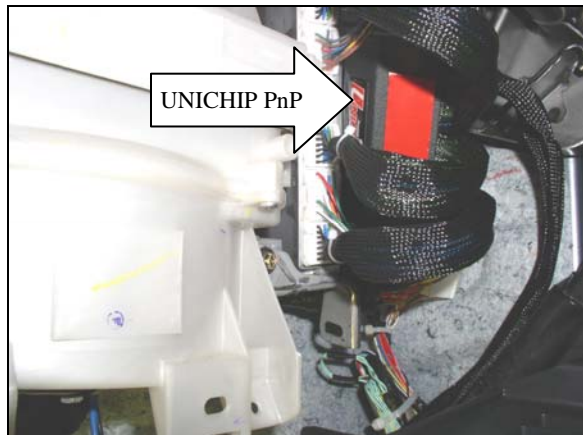


FIGURE 95

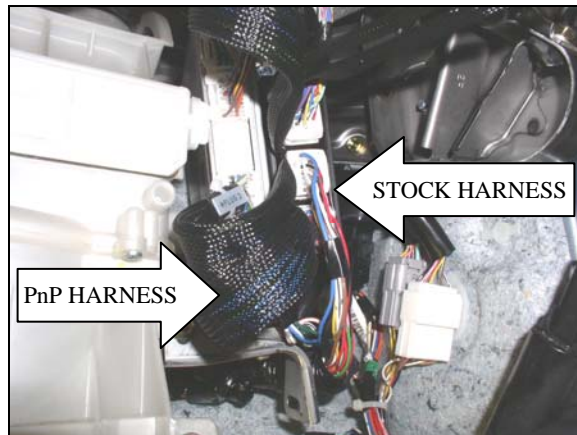




FIGURE 96



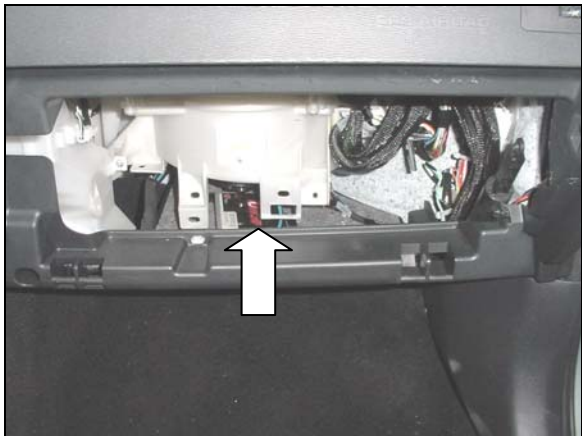
5. Using the supplied plastic zip ties, zip tie the PnP wire harness together so it is out of the way of the glove box. SEE FIGURE 97

FIGURE 97



6. Secure the Unichip ECU to the flat tray beneath the OEM ECU. SEE FIGURE 98

FIGURE 98





FINAL CHECKLIST:

- Review these instructions to make sure that all fasteners, clamps & electrical connections have been installed & torqued correctly.
- Check that all hose routings are free of any kinks or near any hot or abrasive surfaces, that may cause wear over time. Adjust or reroute as necessary to provide adequate slack for engine movement.
- Refill all fluids (oil & power steering) to factory recommended levels.
- The use of synthetic oil (with the factory recommended oil weight) is strongly recommended, as it will prolong the life of the turbocharger. Regardless of factory recommended intervals, the addition of a turbocharger requires that the oil be changed every 3,000 miles.
- The use of premium octane unleaded fuel is required for proper engine performance and to reduce the possibility of internal engine damage from detonation.
- Cycle the ignition to the "ON" position several times to pressurize the fuel system & check for any leaks.
- Start the vehicle and check for any oil, power steering or air pressure leaks.
- **NOTE:** It is normal for the vehicle to emit some amount of white smoke & a strange odor for an hour or two of operation, as the oils within the exhaust pipes burn off.

TROUBLE SHOOTING GUIDE

Car Won't Start:

1. Check ECU harness and Unichip PnP harness to ensure all connectors are properly seated
2. Check injector harness to ensure good connection of pig tails
3. Check coil packs to verify good connection
4. Check fuel pump fuse (fuse is located in rear fuse panel behind battery)
5. Check for codes and troubleshoot per code

Car runs poorly. Stuttering, stalling, misfiring:

1. Verify MAF is connected and wires are intact
2. Check boost level. If boost level is other than 8 PSI verify vacuum line fittings are in the correct ports on the BOV and wastegate. For the BOV the fitting should be in the upper most port closest to the red



Turbonetics logo. The bottom port should be open. For the wastegate the fitting should be in the lower port furthest from the red Turbonetics logo. The upper port should be open.

3. Check for boost leak at or after MAF
4. Verify throttle body is operating properly
5. Ensure the O2 sensor extender provided from Turbonetics is installed on the second factory O2 sensor. The second O2 sensor is the one on the S pipe. The primary O2 sensor should be connected to the Turbonetics supplied downpipe with no extender.

ECU throwing codes (misfire):

1. Verify the spark plugs are not fouled and are gapped appropriately
2. Remove the injector harness and remove the supplied barrel splices from the supplied pigtailed and solder the new injector pig tails to the factory injector harness
3. Verify the vacuum signal lines are going to the correct ports on the BOV and wastegate
4. Verify the O2 sensor extender provided by Turbonetics is installed on the second O2 sensor and not the Primary

Car not building full boost:

1. Check for boost leaks
2. Verify boost signal line is in proper position on blow off valve (upper most port closest to logo)
3. Verify wastegate boost signal line is installed properly (lower port furthest from logo)
4. Check for exhaust leaks.

Black residue/soot in engine bay/turbo not spooling quickly:

1. Check flange connection on downpipe for any warping
2. Check wastegate recirculate tube for any cracks
3. If downpipe flange is not sealing check lower downpipe support bracket. On some Scion Tc the tolerances are off and the lower flange does not properly line up with the threads in the block used to bolt the flange to the motor. If this is the case you will need to elongate the lower flange mounting hole to allow it to properly seat/bolt up without having to put excess pressure on the downpipe. A local exhaust shop can do this or it can be done with a Dremel tool and metal cutting bit
4. If the wastegate recirculate tube is cracked it may be the result of excessive motor movement. On some heavily drag raced Scion Tc's we have evidence of excessively compliant motor mounts. The over compliance of the motor mount cause the wastegate recirculate bellow to crack under the increased strain. It is highly suggested the customer purchase and install an Ingalls Stiffy engine stabilizer brace if frequent drag racing is planned.

Car running excessively rich:

1. Verify O2 extender is installed on secondary O2 sensor not the primary one.

Car detonating under boost:

1. Check boost pressure
2. Check fuel pressure
3. Verify injectors are installed properly
4. Verify air fuel ratio on dyno

Car smoking when coming off boost:

1. Oil drain line not installed properly
2. Oil drain not above oil level



3. Turbo seal failed
4. Verify oil pressure

Maximum boost limits on stock motor:

1. The stock 2AZ-FE has shown to be rather stout but it is not recommended boost pressure be increased above 8 PSI. However, there are reports of several customers running 9.5 PSI of boost with success while using the Spearco WIS part number 30993. A DIY instructional thread on Scion Tc installation of this system is posted on www.turboneticsownersclub.com in the Spearco Water Injection System Forum
2. Tuning of the Unichip on a load based dyno will allow for increased power production at the standard 8 PSI pressure. Increasing boost pressure is not recommended without a Spearco WIS and / or proper tuning of the Unichip on a load based dyno by an authorized Unichip tuner. Increasing boost pressure may result in engine failure and as such increasing boost pressure is at your own risk.

“NO FAULT / NO HASSLE” WARRANTY PROGRAM:

TURBONETICS will repair or replace, at our expense, any new TURBONETICS / Spearco products that fail, including products used in racing or competition applications, for a period of one year from the original date of purchase. All turbocharger and cartridge assemblies have a factory installed inline oil filtration device. This filter device must remain in place if any warranty is to be considered under the No-Fault / No-Hassle program. Electrical components that fail due to misuse are not covered under the No-Fault / No-Hassle Warranty Program.

Warranty is limited to TURBONETICS products and does not include progressive or subsequential damage and does not cover removal or installation labor or associated parts. No warranty is made for any other claims for special, indirect or consequential damages including but not limited to component removal or installation equipment downtime, prospective profits or other economic loss.



Warranty will not be granted for recurring damage, malfunction, or failure due to improper installation, misuse, unauthorized repair or alterations, or externally induced physical damage.

Warranty is non-transferable and must be processed via the original purchaser from TURBONETICS.

Remanufactured units, performance upgraded units, and O.E.M. replacement units are covered by a 90-day warranty or the O.E. warranty period.

TURBONETICS highly recommends that the installation of mechanical or electrical parts be performed by trained professionals. Improperly installed products may lead to unsafe and unreliable conditions.

RETURN POLICY:

Only unused and complete merchandise may be accepted for return subject to inspection and acceptance by TURBONETICS. No goods will be accepted without prior return authorization from TURBONETICS. Call for approval and RGA (Returned Goods Authorization) tracking number. No returns will be accepted without an RGA tracking number. No returns will be accepted after ninety (90) days from the original shipping date from TURBONETICS unless approved. All approved returns are subject to a 15% restocking charge – NO EXCEPTIONS. The original invoice must accompany the return. Accepted warehouse / distributor and open account returns will be issued credit only.

RETURNED GOODS AUTHORIZATION TRACKING NUMBER:

TURBONETICS will only accept product returns, repair orders / upgrades, and warranty requests that have been approved and are returned with a corresponding RGA (Returned Goods Authorization) tracking number.

Contact TURBONETICS for approval and the RGA number. Write the RGA number clearly on the outside of the package and include it inside the package. This is very important in allowing us to properly identify and process your request. Failure to comply with this requirement will result in the delay of processing or the product being returned to you.